Philips Pegasys to Codonics Horizon
Quick Start Guide

Overview

The purpose of this instruction is to outline the essential steps required to set up and configure a Codonics Horizon printer for operation with a Philips Pegasys workstation. More detail can be found in other supplied documents such as the *Horizon User's Manual, Horizon Technical Manual* and *Codonics Color Dye Sublimation Printers Ver. 7.0 Release Document*.

In addition, this document attempts to outline some of the unsupported combinations, such as the driver version 5, with their capabilities and drawbacks.

To navigate the Pegasys desktop it is necessary to right-click on the background and hold to bring up menu options such as **System Maintenance**.

There are two ways to connect a Horizon to Pegasys:

1. **Driver**:
    A. Use version 7 of the Codonics print driver.
    B. Version 7 driver requires version 5 of the Pegasys system software.
    C. The driver supports A, A4 and 8x10 page sizes. Use DICOM instead of the driver if large medias need to be supported.
    D. Version 5 of the driver may be used but only in a limited capacity; the media must be chosen from the printer's front panel so that only one color media and one grayscale media may be selected at a time. This combination is not officially supported.
    E. PegX systems (Pegasys version 3.4) cannot be upgraded to version 5 of the Pegasys system software.
    F. The Horizon *must* have an EP Emulation key installed. If this feature is enabled, it will be reflected on the Imager Status Test Print.
2. **DICOM**:
    A. Use Pegasys DICOM versions 4.24 and 4.25. There are known issues with 4.22.
    B. Pegasys DICOM 4.24 and 4.25 require Pegsasys system software version 5.
    C. PegX cannot be upgraded to DICOM 4.24 or 4.25 but it can use 4.22.
    D. Large and small formats are supported.
    E. Limited print layouts (1x1 and 2x2) are supported in the Pegasys DICOM interface.
    F. The Horizon must have the DICOM feature installed. Philips Horizon SF configurations do not have this option by default and it must be purchased.

See the **System Requirements** section of the *Codonics Color Dye Sublimation Printers Ver. 7.0 Release Document* for details on the offically supported configurations.

The **Add/Del Utility** must be performed on the Pegasys Master system.

Please refer to the documentation shipped with the Horizon for unpacking and media loading details. These instructions begin with a printer which has been powered up and cleaned.

Horizon Setup

1. Insert the correct Cat 5 network cable on the back of the printer:
    ❖ Use the straight-through cable (blue cable provided by Codonics) if the Horizon and the Pegasys are part of a larger network.
    ❖ Use the crossover cable (gray cable provided by Codonics) if the Horizon will be connected directly to the Pegasys.
2. Determine the IP address to be used by the Pegasys:
    ❖ On a large network, obtain network address information from the site's System Administrator.

❖ If directly connected or on an isolated network, choose an unused address that differs only in the last section (octet). For example, if the IP address of the Pegasys is **192.9.200.10**, the Horizon could use **192.9.200.50**, as long as no other device on the isolated network is also assigned this IP.

NOTE: Find the Pegasys IP address by going to **System Maintenance > System Utilities >Unix Window** and typing:

```
ypcat hosts
```

3. *Driver Version 5 only*: You will be limited to one grayscale media and one color media set through the front panel **Default User Settings** menu. Go to **Menu → Default User Settings → Media** and select the media size and type combination for each of grayscale and color printing. This setting can be changed at any time, but in practice switching this setting often is awkward.

4. Install the imager's IP address. Be aware that upon completion of this task the imager will reboot:
   A. Press and hold the left arrow button (←) while pressing the **Menu** button. Release both buttons.
   B. Press the down arrow (↓) to the **Network Settings** menu, and press **Enter**.
   C. Press the down arrow (↓) to the **Addresses…** menu and press **Enter**.
   D. Using the up and down arrows, (↑ ↓) enter the first octet of the IP address. Use the right arrow to move to the next octet and repeat the process. Continue through the rest of the IP address.
   E. If subnet and gateway information are required, use the right arrow (→) to move to the **Subnet** line, and install the subnet address using the same procedure as the IP. Use the right arrow to continue to the **Gateway** address.
   F. When all addresses are complete, press **Enter**, then press **Menu**. This step will initiate an imager reboot. This process takes about 5 minutes.

      NOTE: If the subnet or gateway information is illegal based on the IP address, the printer will delete these settings and return to the default subnet and gateway upon reboot.

5. Run an Imager Status Test Print:
   A. Ensure that the red Alert light is not on. If it is, follow the prompts on the bottom half of the screen to resolve the condition. For instance, ensure that the receive trays are inserted properly and that at least one media is installed in the imager. (TIP: Use one of 8x10 film, A or A4-size DV Paper, if available, for this test.)
   B. Press **Online**.
   C. Press the Down-Arrow (↓) to **Test Prints** and press **Online**.
   D. Select the currently-loaded media size and type. Press **Enter**.
   E. Select **Imager Status** from the menu, and press **Enter**.
   F. Leave the Copies default set to **1** and press **Enter.** This step will initiate the teste print.
   G. Check the resulting printout for the IP address and for the correct PostScript and DICOM options:
      1) **NetworkInfo**: IP Address, Subnet Mask and Gateway
      2) **PrinterFeatureInfo**: DICOM will be the top two options listed in this section. EP Emulation will also be listed here.

Driver-based Setup

ADDING THE HORIZON TO THE PEGASYS

Before configuring a Codonics printer in the Pegasys software, you must add the printer to the Pegasys master host file using the ADD/DEL PRINTER utility. See also the section, **Adding or Deleting Codonics Printers** in the *Codonics Color Dye Sublimation Printers Ver. 7.0 Release Document.*

1. Right click on the background to **PATIENT UTILITIES > CODONICS UTILITIES > ADD/DEL PRINTER**. A UNIX window appears. To exit the Add/Del utility prior to completing a task, press `<CTRL-C>`.
2. Log in as Superuser: login name `adac`, password `adacsu.`
3. Type

```
             Add <enter>
```
4. Follow the prompts. Use the IP address set in the preceding section as the IP address of the printer. Please note that two hostnames cannot point to the same IP address; if there is already an entry for the IP that you are configuring, either cancel the Add procedure or delete the old entry.
5. Verify the connection by going to a shell window and typing:

```
             ping printer_ip
```

PRINTER CONFIGURATION IN PEGASYS

This section configures the options like the media size and type, MCM and formats. Multiple configurations can be created for a single printer in order to have different sets of preferences. See also the section **Adding a Codonics Printer Entry** in the *Codonics Color Dye Sublimation Printers Ver. 7.0 Release Document.*

One technique that can make printing easier for users is to create multiple printer entries based on the media size and type. Therefore, there will be one printer configuration for film, one for color paper, and one for grayscale paper.

To add a Codonics printer entry:

1. Right-click to **PATIENT UTILITIES > CODONICS UTILITIES > CODONICS CONFIGURATION**.
2. Click on the **Add** button under the Codonics Printers list. A highlighted **unTitled** entry appears in the list.
3. Click on unTitled in the **Printer Name** field and type the name of a new configuration. This name is used to identify the printer. The configuration name should not contain any spaces or tabs, for example, `CODONICS_EP`. Use something descriptive, particularly if multiple printer configurations will be used.

> NOTE: Do not use a configuration name that is a subset of another configuration name. For example, do not assign two configurations with the names CODONICS and CODONICS_HZ.

4. Click on the down-arrow next to the **Printer Host Name** field and select the correct hostname for the printer.
5. Fill in **Configuration Info** with the following:

```
             MCM=103
```
6. Fill in the remaining fields. Pay attention to the media size and type; use **8x10** for small film, **A** for American Letter, and **A4** for European Letter. Make sure that color or grayscale option is set correctly as well as the medium type (**Film** or **Paper**).
7. If all printers have been configured, click **Save All & Exit.** If more printers must be configured, click **Save** and repeat this section.

DICOM Setup

The DICOM setup must be peformed from the Master system.

EDITING THE HOST FILE

1. Click on **Patient Utilities → DICOM Utilities → DICOM Configuration**. The window heading will be *ADAC DICOM Configuration.* Select the **Change Printer** checkbox.
2.
3. Look for the **Add Host** button. If the button is available, enter the IP address assigned to the printer earlier in this instruction. Use the hostname **Horizon**. If there is already a Horizon imager set up, either delete that entry or cancel the Add procedure. Proceed to the section *Printer Setup Utility*.
4. If the **Add Host** button is *not* available, do the following:

A. Cancel the *ADAC DICOM Configuration* window.
B. Go to a UNIX shell: **System Maintenance > System Utilities > Unix Window**
C. Enter as superuser:
>> login: `su`
>> password: `adacsu`
D. Change directories :
>> `cd /etc`
>> `more hosts`
E. Verify that no Horizon entry is present. If there is an entry for Horizon, note the IP address and the hostname exactly as written, including case.
F. If the `more` utlility is still active, exit it by typing `q`.
G. In the Unix window, type:
>> `textedit hosts`
H. At the bottom of the resulting window, make a printer entry in the format
>> `IP address <tab> hostname`

Example:
>> `192.9.200.51     Horizon`
I. Click left on **File** to save the change. To make the change recognized by the system, type
>> `cd /var/yp`
>> `make`
J. Finally, return to the ADAC DICOM Configuration utility to finish the installation.

PRINTER SETUP UTILITY

The *ADAC DICOM Configuration* is very similar to the Codonics driver setup screen. One key difference is the AE title. Choose the appropriate AE title from the following list.

Media Type	AET to use
14x17 DV Film Blue Base	**14x17-dvfb**
14x17 DV Film Clear Base	**14x17-dvfc**
8x10 DV Film Blue Base	**8x10-dvfb**
8x10 DV Film Clear Base	**8x10-dvfc**
14x17 DV Paper (grayscale)	**14x17-dvp**
A-Size DV Paper (grayscale)	**a-dvp**
A4-Size DV Paper (grayscale)	**a4-dvp**
A-Size CV Paper (color)	**a-cvp**
A4-Size CV Paper (color)	**a4-cvp**
Bracketing Print (various contrasts/gammas)	**SpecialBracket**
See Page C-2 of the Horizon User's Manual	
for a complete list of pre-set AE titles.	

The DICOM interface supports 8x10, 11x14 and 14x17 media sizes. The DICOM interface does not include A or A4 page sizes. Use the correct AE title from the above list, select 8x10 for the page size, and make sure that a magnification type, such at **Bilinear**, is also set. These three settings will force the print onto letter-sized paper and will ensure the best fit for letter-sized prints.

Select the preferred layout:1x1 or 2x2.

Under **Configuration Info**, enter `mcm=103`

After all settings have been changed, select **Save and Exit**. Re-enter this screen to set up subsequent printers.

Restarting the Codonics Print Daemon

If images are not being received by the printer but the ping command comes back successfully, restart the Codonics Print daemon: right-click on the desktop to display the Pegasys Main Menu, and then right-click **PATIENT UTILITIES > CODONICS UTILITIES > RESTART CODONICS PRINT DAEMON**.

Setting the Horizon as the Default Printer

See also the section **Setting the Codonics Printer as the Default** in the *Codonics Color Dye Sublimation Printers Ver. 7.0 Release Document.* To set the Horizon as the default for all sessions, use the **Set Default Devices** application. Click on **SYSTEM MAINTENANCE > SET DEFAULT DEVICES > CHANGE DEFAULT SETTINGS > CHANGE DEFAULT FORMATTER**.

To change the default printer for a single session:

1. Display the Formatting Control Panel by right-clicking on the **Format** icon and selecting **Control Panel** from the pop-up menu.
2. Right-click on the **Formatter** button and selecting a Codonics printer from the pop-up menu. Click **Proceed**.
3. When the application is closed, the default printer will revert to the printer set through **Set Default Devices** or through the **Print Preview**.

Adjusting Image Quality

The Horizon provides a number of adjustments that can be used to optimize printed image quality. These adjustments are invoked using the **Configuration Info** field in the Configuration screen.

The most important setting for color printing is Codonics' exclusive Medical Color Matching (MCM) setting. The setting devised for Horizon is MCM 103.

♦ **Gamma**: Affects the overall lightness or darkness of the printed image while preserving full black and full white. An increase in gamma value will lighten the printed image; a decrease in gamma value will darken the printed image.
♦ **Contrast**: Enhances or reduces the contrast of the printed image. Positive settings will enhance contrast while negative settings will reduce contrast in the printed image.
♦ **Saturation**: Color prints only. As saturation increases colors get brighter and more vibrant. Negative saturation (desaturation) removes color and makes them more muted.

An example of the Configuration Info line using three settings is:

```
mcm=103\gamma=1.2\contrast=5
```

Codonics Driver printing *only*: If the print is too dark and changes to settings do not seem to have any effect, create a special Custom Job Setting for the printer:

1. Go to the printer and press the left arrow and the **Menu** key (← **+ Menu**).
2. Press the down arrow to **Custom Job Settings**, then press **Enter**.
3. Go to **New...** and press **Enter**.
4. Go to **Name** and press **Enter**.
5. Press the left and right arrows (← →)simultaneously. Enter the name **RAW_JS** by using the up and down-arrows. Press **Enter** when this is complete.
6. Next, go to the **LUT** setting and press **Enter**. Change the LUT to **Visual.**
7. Press **Enter**, then **Menu**, then send a print from the Pegasys to verify the change.
8. If further adjustment is required, return to the **Custom Job Settings menu** (steps 1 and 2), go to **Edit**, and change the **Gamma** value to 1.3. Exit using **Menu**. Test this new configuration, and increase the gamma by .3 until the desired lightness is reached. Gamma should not go above 2.0; if prints are still too dark at that gamma then there is another issue.